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Jin-ho Park

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EXAMINER

HUFFMAN, JULIAN D

ART UNIT

PAPER NUMBER

2853

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/671,940

Applicant(s)

PARK ET AL.

Examiner

Julian D. Huffman

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) 12-24 and 33-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 25-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/29/03, 7/26/05, 3/18/04
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

1. Claims 12-24 and 33-39 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 29 September 2005.

### *Claim Objections*

2. Claims 6, 9 and 27-30 are objected to because of the following informalities:

In claim 6, line 1, the language “wherein one first and second support beams” is not clear. For purposes of examination, claim 6 has been interpreted in light of the similar language found in claim 7.

In claim 9, the language “segmenting a space of the ink collector without partitioning it” is not clear. Segmenting is defined as separating into constituent parts while partitioning is defined as dividing into part or shares. Thus it is not clear as to how something can be segmented without being partitioned. For purposes of examination, this language is interpreted as referring to the ribs partially segmenting the space, but not completely partitioning the space into separate parts. Support for this interpretation is found at least in the drawings (fig. 5).

In claims 27-30, “the nozzle unit” lacks antecedent basis.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-11, 25-29, 31 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsushashi (U.S. 5,997,129).

Matsushashi discloses:

With regards to claim 1, a printer (fig. 7, abstract) comprising:

an ink head (203Y, 203M, 203C, column 9, lines 63-66) comprising a nozzle unit to eject ink drops (column 9, lines 63-66 and column 2, lines 29-37, since the device is an ink-jet head, it has nozzles; a jet is defined as “a forceful stream of fluid discharged from a narrow opening or a nozzle”) in a shingling mode (the limitation that the nozzle unit ejects ink drops in a shingling mode does not further limit the structure of the nozzle unit; this limitation is an intended use recitation and the nozzle of Matsushashi is capable of ejecting ink in a shingling mode, therefore, it meets this limitation) providing edge printing (abstract, the device prints across the entire width of the recording medium);

an ink collector (figs. 7 and 8, element 211) positioned under paper (205) to correspond to the nozzle unit (fig. 7, 203) and collect ink digressing from the paper (column 2, lines 29-37 and column 11, lines 4-9); and

a plurality of support beams (fig. 8, element 214) extending at an upper portion of the ink collector in a paper feed direction and in an opposite direction to the paper feed direction (dividing the ink collector in half in the scanning direction of the print head, the upper half is the half in the paper feed direction, while the lower half is the half in the direction opposite the paper feed direction, thus it can be seen that each support beam 214 extends in both directions) and alternately arranged with each other in a scan direction (numbering the beams consecutively from left to right, the even beams are alternately arranged with respect to the odd beams).

With regards to claim 2, the printer of claim 1, wherein the support beams comprise:

a first support beam extending from a paper feed side of the ink collector in the paper feed direction (any one of beams 214 since each beam extends in both directions); and

a second support beam extending from a paper discharge side of the ink collector in the opposite direction to the paper feed direction (any other one of beams 214).

With regards to claim 3, the printer of claim 2, wherein the first and second support beams extend to have the same length to support the paper (fig. 8, the beams are identical).

With regards to claim 4, the printer of claim 3, wherein an end point of the first support beam and an end point of the second support beam face each other in the scan direction (fig. 8, the left end of the first support beam faces the right end of the second support beam in the scan direction).

With regards to claim 5, the printer of claim 3, wherein the end portion of the first support beam extends in the paper feed direction to interlace with that of the second support beam (considering the even numbered beams to be first beams and the odd numbered beams to be second beams, it is seen that the beams interlace with each other).

With regards to claim 6, the printer of claim 4, wherein one first and second support beams have the same height in a direction toward the ink head, the direction perpendicular to the paper feed direction and the scan direction (the beams are identically formed).

With regards to claim 7, the printer of claim 5, wherein the first and second support beams have the same height in a direction toward the ink head, the direction perpendicular to the paper feed direction and the scan direction (the beams are identically formed).

With regards to claim 8, the printer of claim 7, wherein the support beam extends from a barrier (fig. 8, 212a, column 10, lines 32-33), which partitions the ink collector (the barrier 212a partitions the ink collector since it divides it into parts, a front part, a rear part, and two side parts, by forming the central open region) .

With regards to claim 9, the printer of claim 7, wherein the support beam (214) is a rib (column 10, line 31) segmenting a space of the ink collector without partitioning it (the rib partially segments a space of the ink collector, but does not completely partition the space, note the spaces between the ribs).

With regards to claim 10, the printer of claim 2, wherein the second support beam has a round end portion (fig. 8, all of the support beams have generally round top-end portions which contact the print media during printing).

With regards to claim 11, the printer of claim 2, wherein the second support beam has a slant end portion inclining in the paper feed direction (fig. 8, the beams incline in the feed direction).

With regards to claim 25, a printer (fig. 7, abstract) comprising:

an ink head (203) ejecting ink drops at an edge of a printing medium (abstract);

an ink collector positioned under the printing medium to collect excess ink from the printing medium (figs. 7 and 8, element 211, column 2, lines 29-37 and column 11, lines 4-9);

a plurality of first support beams extending at an upper portion of the ink collector in a printing medium feed direction to support the printing medium at a printing medium feed side of the ink collector (consecutively numbering the support beams from left to right, odd numbered support beams may be considered as first support beams, each support beam supports the printing medium at a printing medium feed side and a discharge side); and

a plurality of second support beams extending at an upper portion of the ink collector in an opposite direction to the printing medium feed direction and alternately arranged with the plurality of first support beams to support the printing medium at a printing medium discharge side of the ink collector (even support beams).

With regards to claim 26, the printer of claim 25, wherein the ink head comprises an ink nozzle to eject ink drops on the printing medium when the ink head moves in a scan direction (column 9, lines 63-66 and column 2, lines 29-37, since the device is an ink-jet head, it has a nozzle; a jet is defined as "a forceful stream of fluid discharged from a narrow opening or a nozzle).

With regards to claim 27, the printer of claim 26, wherein the ink collector (fig. 8, 211) is located under the printing medium (205) and has a width corresponding to the width of the nozzle unit (fig. 7 and 8, the collector is disposed under the nozzle unit/print head 203 to collect the ejected droplets and thus has a width corresponding to the width of the nozzle unit).

With regards to claim 28, the printer of claim 26, wherein the ink collector is located under the printing medium and has a width wider than the width of the nozzle unit (figs. 7 and 8, the collector is wider than the print head 203).

With regards to claim 29, the printer of claim 27, wherein the ink collector further comprises:

a floor portion (212a); and

a space portion (212b-212d) having an opening above the floor portion to catch ink drops (column 10, lines 35-36).



With regards to claim 31, the printer of claim 25, wherein the ink collector comprises:

a plurality of space portions (a space portion is defined between each beam);  
and

a plurality of barriers separating the plurality of space portions, wherein the first and second support beams integrally extend from the barriers alternately with respect to each other (the lower portion of each support 214 is a support barrier, with the integral top portion functioning as the support beam).

With regards to claim 32, a printer (fig. 7, abstract) comprising:

an ink head (203) ejecting ink drops at an edge of a printing medium (abstract);

an ink collector (figs. 7 and 8, element 211) positioned under the printing medium (205) to collect excess ink from the printing medium (column 2, lines 29-37 and column 11, lines 4-9);

a plurality of first support beams (214, even) extending at an upper portion of the ink collector in a printing medium feed direction to support the printing medium at a printing medium feed side of the ink collector; and

a plurality of second support beams (214, odd) extending from an upper portion of the ink collector at a printing medium discharge side of the ink collector and in an opposite direction to the printing medium feed direction, the plurality of second support beams being overlapped by the plurality of first support beams to support the printing medium during feeding thereof between the ink head and the ink collector (fig. 8).

5. Claims 1-9, 11, 25-29, 31 and 32 are rejected under 35 U.S.C. 102(e) as being anticipated by Ohashi (U.S. 20020089564 A1, cited by applicant).

With regards to claim 1, a printer (fig. 3, abstract) comprising:

an ink head (10) comprising a nozzle unit to eject ink drops (0063) in a shingling mode providing edge printing (figs. 2, 6 and 8, 0083-0087, the data shown in fig. 6, element 18, is printed first, then the remaining portions are printed, as shown in fig. 8, in a shingling mode of operation);

an ink collector (fig. 7, elements 11 and 12) positioned under paper to correspond to the nozzle unit and collect ink digressing from the paper (fig. 3); and

a plurality of support beams extending at an upper portion of the ink collector in a paper feed direction and in an opposite direction to the paper feed direction and alternately arranged with each other in a scan direction (11b, 11a).

With regards to claim 2, the printer of claim 1, wherein the support beams comprise:

a first support beam extending from a paper feed side of the ink collector in the paper feed direction (11b, 0078); and

a second support beam extending from a paper discharge side of the ink collector in the opposite direction to the paper feed direction (11a, 0078).

With regards to claim 3, the printer of claim 2, wherein the first and second support beams extend to have the same length to support the paper (fig. 7).

With regards to claim 4, the printer of claim 3, wherein an end point of the first support beam and an end point of the second support beam face each other in the scan direction (fig. 7).

With regards to claim 5, the printer of claim 3, wherein the end portion of the first support beam extends in the paper feed direction to interlace with that of the second support beam (fig. 7).

With regards to claim 6, the printer of claim 4, wherein one first and second support beams have the same height in a direction toward the ink head, the direction perpendicular to the paper feed direction and the scan direction (fig. 7, they are identical).

With regards to claim 7, the printer of claim 5, wherein the first and second support beams have the same height in a direction toward the ink head, the direction perpendicular to the paper feed direction and the scan direction (fig. 7, identical).

With regards to claim 8, the printer of claim 7, wherein the support beam extends from a barrier (11), which partitions the ink collector (the barrier divides the ink collector into two parts, a lower closed part and an upper open part).

With regards to claim 9, the printer of claim 7, wherein the support beam is a rib segmenting a space of the ink collector without partitioning it (the ribs partially segment the ink collector without completely partitioning it).

With regards to claim 11, the printer of claim 2, wherein the second support beam has a slant end portion inclining in the paper feed direction (fig. 7, note direction of arrow as paper feed direction).

With regards to claim 25, a printer (fig. 3, abstract) comprising:

an ink head (10) ejecting ink drops at an edge of a printing medium;

an ink collector (11, 12) positioned under the printing medium to collect excess ink from the printing medium;

a plurality of first support beams (fig. 7, element 11b) extending at an upper portion of the ink collector in a printing medium feed direction to support the printing medium at a printing medium feed side of the ink collector (0078); and

a plurality of second support beams (11a) extending at an upper portion of the ink collector in an opposite direction to the printing medium feed direction and alternately arranged with the plurality of first support beams to support the printing medium at a printing medium discharge side of the ink collector (0078).

With regards to claim 26, the printer of claim 25, wherein the ink head comprises an ink nozzle to eject ink drops on the printing medium when the ink head moves in a scan direction (0063).

With regards to claim 27, the printer of claim 26, wherein the ink collector is located under the printing medium and has a width corresponding to the width of the nozzle unit (figs. 3 and 7).

With regards to claim 28, the printer of claim 26, wherein the ink collector is located under the printing medium and has a width wider than the width of the nozzle unit (figs. 3 and 7).

With regards to claim 29, the printer of claim 27, wherein the ink collector further comprises:

a floor portion (11); and

a space portion having an opening above the floor portion to catch ink drops (the entire portion above the ink absorber 12 is a space portion).

With regards to claim 31, the printer of claim 25, wherein the ink collector comprises:

a plurality of space portions (space portions exist between each support beam 11a, 11b); and

a plurality of barriers separating the plurality of space portions, wherein the first and second support beams integrally extend from the barriers alternately with respect to each other ((the lower portion of each support 11a, 11b, is a support barrier, with the integral top portion functioning as the support beam).

With regards to claim 32, a printer (fig. 3, abstract) comprising:

an ink head (10) ejecting ink drops at an edge of a printing medium;

an ink collector (11, 12) positioned under the printing medium to collect excess ink from the printing medium (fig. 7);

a plurality of first support beams (fig. 7, 11b) extending at an upper portion of the ink collector in a printing medium feed direction to support the printing medium at a printing medium feed side of the ink collector (0078); and

a plurality of second support beams (11a) extending from an upper portion of the ink collector at a printing medium discharge side of the ink collector and in an opposite direction to the printing medium feed direction, the plurality of second support beams

being overlapped by the plurality of first support beams to support the printing medium during feeding thereof between the ink head and the ink collector (fig. 7, 0078).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuhashi in view of Kobayashi et al. (U.S. 6,158,840).

Matsuhashi discloses an absorber (fig. 8, element 213) and everything claimed with the exception of the space portion comprising a felt to absorb ink drops caught by the space portion.

Kobayashi et al. discloses a felt ink absorber (column 3, lines 35-37, fig. 1, element 15).

It would have been obvious to one having ordinary skill in the art at the time of the invention to replace the absorber of Matsuhashi with a felt absorber, as suggested by Kobayashi et al., for the purpose of providing a "porous material having excellent ink receptivity and retention" (column 3, lines 35-37).

8. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohashi in view of Kobayashi et al. (U.S. 6,158,840).

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Ohashi discloses an absorber (fig. 7a, element 12) and everything claimed with the exception of the space portion comprising a felt to absorb ink drops caught by the space portion.

Kobayashi et al. discloses a felt ink absorber (column 3, lines 35-37, fig. 1, element 15).


It would have been obvious to one having ordinary skill in the art at the time of the invention to replace the absorber of Ohashi with a felt absorber, as suggested by Kobayashi et al., for the purpose of providing a "porous material having excellent ink receptivity and retention" (column 3, lines 35-37).

***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian D. Huffman whose telephone number is (571) 272-2147. The examiner can normally be reached on 10:00a.m.-6:30p.m. Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Julian D. Huffman  
27 October 2005